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PowerFlex®

DPI™ COMMUNICATION ADAPTERS

PowerFlex® Communications

- ControlNet™ COAX ADAPTER (20-COMM-C)
- DeviceNet™ ADAPTER (20-COMM-D)
- EtherNet/IP™ ADAPTER (20-COMM-E)
- RS485 HVAC ADAPTER (20-COMM-H)
- INTERBUS™ ADAPTER (20-COMM-I)
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- PROFIBUS DP™ ADAPTER (20-COMM-P)
- ControlNet™ FIBER ADAPTER (20-COMM-Q)
- REMOTE I/O™ ADAPTER (20-COMM-R)
- RS485 DF1™ ADAPTER (20-COMM-S)
- RS232 DF1™ MODULE (1203-SSS)
- COMPACT I/O™ MODULE (1769-SM1)
- DPI WIRELESS INTERFACE MODULE
- DPI EXTERNAL COMMUNICATIONS KIT

PRODUCT PROFILE

20-COMM-C ControlNet™ COAX ADAPTER

PowerFlex® Communications

The PowerFlex® 20-COMM-C ControlNet coax adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over a ControlNet network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Configuration Switches – The adapter has rotary switches for setting the node address. Alternatively, the switches can be disabled, allowing the node address to be set using a configuration parameter.

Redundancy – The adapter provides a redundant media connection for improved media reliability. The adapter also supports multicast and redundant owner/hot backup.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex HIM, or drive configuration software such as DriveExplorer™ or DriveExecutive™.

DPI Routing – Allows DriveExplorer to connect to a PowerFlex drive using a 1203-SSS serial converter and then route out over ControlNet to access other Allen-Bradley drives. This eliminates the need for a separate network tap and interface.

I/O Messaging (Scheduled) – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:
- Logic Command / Reference
- Logic Status / Feedback
- Datalinks - read and write up to 8 parameters

Explicit Messaging (Unscheduled) – Explicit messaging involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.). The adapter supports the reading / writing of parameters, etc. in the drive and any connected DPI peripheral(s).

User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:
- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:
- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to/from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive, or ControlFLASH, to take advantage of new firmware features as they become available.

ControlNet

PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	CN Addr Cfg	Configures the ControlNet node address if the Node Address Switches are set to "00."
04	CN Addr Act	Displays the ControlNet node address actually used by the adapter.
05	CN Rate Cfg	Configures the ControlNet data rate (megabits per second) at which the adapter communicates.
06	CN Rate Act	Displays the ControlNet data rate (megabits per second)actually used by the adapter.
07	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
08	Datalink Size	Displays the size of each Datalink word.
09	Reset Module	Used to reset the adapter or set defaults.
10	Comm Flt Action	Sets the action that the adapter will take if it detects a network failure.
11	Idle Flt Action	Sets the action that the adapter will take if the adapter detects that the scanner is idle.
12	CN Active Cfg	Displays the source from which the adapter node address is taken.
13	DPI I/O Cfg	Selects the I/O that is transferred through the adapter.
14	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
15 16 17 18 19 20 21 22 23 24	Flt Cfg Logic Flt Cfg Ref Flt Cfg A1 Flt Cfg A2 Flt Cfg B1 Flt Cfg B2 Flt Cfg C1 Flt Cfg C2 Flt Cfg D1 Flt Cfg D2	Sets the data that is sent to the drive if any of the following is true: • Parameter 10 - [Comm Flt Action] is set to "Send Flt Cfg" and communications are disrupted. • Parameter 11 - [Idle Flt Action] is set to "Send Flt Cfg" and the scanner is idle.
25	M-S Input	Selects the data produced by the adapter and consumed by the scanner.
26	M-S Output	Selects the data produced by the adapter and consumed by the scanner.
27	Ref Adjust	Sets the percent scale factor for the Reference from the network.

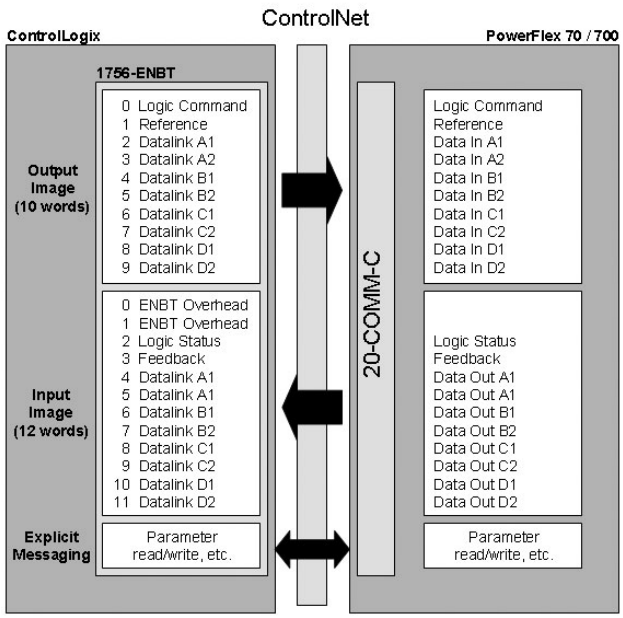
EDS FILES

EDS files can be created on-line using RSNetWorx for ControlNet or downloaded from: **http://www.ab.com/drives/eds.html**

SPECIFICATIONS

Communications	Network	Protocol	ControlNet
		Data Rate	5 Mbps
	Drive	Protocol	DPI
		Data Rates	125K or 500K
Electrical	Consumption	Drive (DPI)	275mA @ 5VDC
		Network	None
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-M91
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

EXAMPLE I/O IMAGE (POWERFLEX 70 / 700 STANDARD)



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PRODUCT PROFILE

20-COMM-D DeviceNet™ ADAPTER

PowerFlex® Communications

The PowerFlex® 20-COMM-D DeviceNet adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over a DeviceNet network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Configuration Switches – The adapter has configuration switches for setting the node address and network data rate. Alternatively, the switches can be disabled, allowing these settings to be configured using parameters.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

DPI Routing – Allows DriveExplorer to connect to a PowerFlex drive using a 1203-SSS serial converter and then route out over DeviceNet to access other Allen-Bradley drives. This eliminates the need for a separate network connection and interface.

I/O Messaging – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:
- Logic Command / Reference
- Logic Status / Feedback
- Datalinks - read and write up to 8 parameters

Polled, Change-of-State (COS) and Cyclic I/O methods are supported.

Explicit Messaging – Explicit messaging involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.). The adapter supports the reading / writing of parameters, etc. in the drive and to any connected DPI peripheral(s).

UnConnected Message Manager (UCMM) Support – The adapter supports DeviceNet Group 3 services, which allows the adapter to speak for itself (a scanner is not required to 'proxy' for the adapter). This allows a software tool, PanelView, another 20-COMM-D, etc. to communicate directly with the adapter, without burdening the scanner and affecting throughput.

Peer-to-Peer Capability – Allows a PowerFlex drive to operate as a "master" and communicate with other PowerFlex 70, 700, 700H and 700S AC drives operating as "followers". The "master" can send control and speed reference data along with up to two parameter values.

Automatic Device Replacement (ADR) Support – Allows a scanner to upload and store the adapter and drive configuration settings. Upon replacing a faulty drive with a new unit, the scanner can automatically download the configuration data and set the node address.

User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:
- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:
- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to/from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH, to take advantage of new firmware features as they become available.

DeviceNet

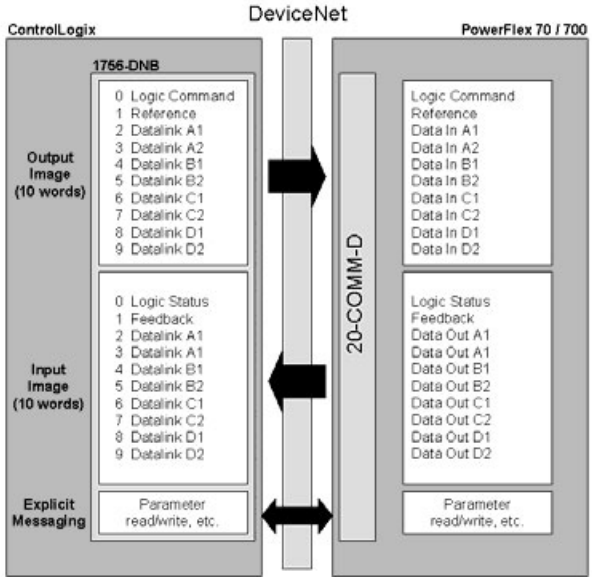
PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	DN Addr Cfg	Configures the DeviceNet node address if the Data Rate switch is set to "PGM" (Program).
04	DN Addr Act	Displays the DeviceNet node address actually used by the adapter.
05	DN Rate Cfg	Configures the DeviceNet data rate if the data rate switch is set to "PGM" (Program).
06	DN Rate Actual	Displays the DeviceNet data rate actually used by the adapter.
07	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
08	Datalink Size	Displays the size of each Datalink word.
09	Reset Module	Used to reset the adapter or set defaults.
10	Comm Flt Action	Sets the action that the adapter will take if it detects a network failure.
11	Idle Flt Action	Sets the action that the adapter will take if the adapter detects that the scanner is idle.
12	DN Active Cfg	Displays the source from which the adapter node address and data rate are taken.
13	DPI I/O Cfg	Selects the I/O that is transferred through the adapter.
14	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
15	Flt Cfg Logic	Sets the data that is sent to the drive if any of the following is true: • Parameter 10 - [Comm Flt Action] is set to "Send Flt Cfg" and communications are disrupted. • Parameter 11 - [Idle Flt Action] is set to "Send Flt Cfg" and the scanner is idle. • Parameter 34 - [Peer Flt Action] is set to "Send Flt Cfg" and communications are disrupted.
16	Flt Cfg Ref	
17	Flt Cfg A1	
18	Flt Cfg A2	
19	Flt Cfg B1	
20	Flt Cfg B2	
21	Flt Cfg C1	
22	Flt Cfg C2	
23	Flt Cfg D1	
24	Flt Cfg D2	
25	M-S Input	Selects the data produced by the scanner and consumed by the adapter.
26	M-S Output	Selects the data produced by the adapter and consumed by the scanner.
27	COS Status Mask	Sets the percent scale factor for the Reference from the network.
28	COS Fdbk Change	Configures the mask for the 16-bit Logic Status word. If a bit is not masked and it changes, it is reported as a change in the Change of State operation.
29	COS/Cyc Interval	Configures the hysteresis band to determine how much the Feedback word can change before it is reported as a change in the Change of State operation.
30	Peer A Input	Displays the amount of time that a scanner will wait to check for data in the adapter.
31	Peer B Input	Configures the destination in the drive of the Peer I/O Input.
32	Peer Cmd Mask	Configures the mask for the Logic Command word when it is received through peer input.
33	Peer Ref Adjust	Scales the Reference received from a peer.
34	Peer Flt Action	Sets the action that the adapter and drive take if the adapter detects that communications with a peer have been disrupted.
35	Peer Node to Inp	Configures the node address of the node producing the peer I/O.
36	Peer Inp Timeout	Configures the time-out for a Change of State peer-to-peer connection.
37	Peer Inp Enable	Determines if Peer I/O input is on or off.
38	Peer Inp Status	Displays the status of the consumed peer input connection.
39	Peer A Output	Selects the source of the Peer I/O output data.
40	Peer B Output	The adapter transmits this data to the network.
41	Peer Out Enable	Determines if Peer I/O output is on or off.
42	Peer Out Time	Configures the minimum time that an adapter will wait when transmitting data to a peer.
43	Peer Out Skip	Configures the maximum time that an adapter will wait when transmitting data to a peer.

SPECIFICATIONS

Communications	Network	Protocol	ControlNet
		Data Rates	125, 250, and 500 Mbps
	Drive	Protocol	DPI
		Data Rates	125K or 500K
Electrical	Consumption	Drive (DPI)	150mA @ 5VDC
		Network	60mA @ 24VDC
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

EXAMPLE I/O IMAGE (POWERFLEX 70 / 700 STANDARD)



EDS FILES

EDS files can be created on-line using RSNetWorx for DeviceNet or downloaded from: **http://www.ab.com/drives/eds.html**

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PRODUCT PROFILE

20-COMM-E ETHERNET/IP™ ADAPTER

PowerFlex® Communications

The PowerFlex® 20-COMM-E EtherNet/IP adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over an EtherNet/IP network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

DPI Routing – Allows DriveExplorer to connect to a PowerFlex drive using a 1203-SSS serial converter and then route out over EtherNet/IP to access other Allen-Bradley drives. This eliminates the need for a separate network connection and interface.

I/O Messaging – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:
- Logic Command / Reference
- Logic Status / Feedback
- Datalinks - read and write up to 8 parameters

Explicit Messaging – Explicit messaging involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.). The adapter supports the reading / writing of parameters, etc. in the drive and to any connected DPI peripheral(s).

Web Interface – Use a web browser such as Microsoft® Internet Explorer™ to access the drive over the Intranet or Internet.
- TCP/IP Configuration - View TCP/IP configuration data and Ethernet diagnostic information.
- Email Notification - Configure email notification if a specific fault or alarm occurs, if any fault or alarm occurs, or if the drive is reset.
- DPI Backplane Browse - View every DPI device, including the drive and connected peripherals. Provides general device information, diagnostics, events and alarm information.
- Online User Manuals – Link to view the user manual online over the Internet.
- Software Tools Web Site – Link to the DriveExplorer and DriveExecutive Internet web sites.
- Launch Drive Software Tools – Directly launch DriveExplorer or DriveExecutive software already on your PC, and have the tool automatically connect to the drive.

Peer-to-Peer Capability - Allows a PowerFlex drive to operate as a "master" and communicate with other PowerFlex 70, 700, 700H and 700S AC drives operating as "followers". The "master" can send control and speed reference data along with up to two parameter values.

User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:
- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:
- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to/from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH, to take advantage of new firmware features as they become available.

EtherNet/IP conformance tested

PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	BOOTP	Enables or disables using a BOOTP server to set the IP address, subnet mask, and gateway address.
04 05 06 07	IP Addr Cfg 1 IP Addr Cfg 2 IP Addr Cfg 3 IP Addr Cfg 4	Sets the respective bytes in the IP address, where the represented address is: Cfg1.Cfg2.Cfg3.Cfg4
08 09 10 11	Subnet Cfg 1 Subnet Cfg 2 Subnet Cfg 3 Subnet Cfg 4	Sets the bytes of the subnet mask, where the represented mask is: Cfg1.Cfg2.Cfg3.Cfg4
12 13 14 15	Gateway Cfg 1 Gateway Cfg 2 Gateway Cfg 3 Gateway Cfg 4	Sets the bytes of the gateway address, where the represented address is: Cfg1.Cfg2.Cfg3.Cfg4
16	EN Rate Cfg	Configures the network data rate at which the adapter communicates.
17	EN Rate Act	Displays the data rate actually used by the adapter.
18	Ref / Fdbk Size	Displays the size of the Reference/Feedback words.
19	Datalink Size	Displays the size of each Datalink word.
20	Reset Module	Used to reset the adapter or set defaults.
21	Comm Flt Action	Sets the action that the adapter will take if it detects anetwork failure.
22	Idle Flt Action	Sets the action that the adapter and drive take if theadapter detects that the scanner is idle.
23	DPI I/O Cfg	Selects the I/O that is transferred through the adapter.
24	DPI I/O Act	Displays the I/O that the adapter is actively transmitting.
25 26 27 28 29 30 31 32 33 34	Flt Cfg Logic Flt Cfg Ref Flt Cfg A1 In Flt Cfg A2 In Flt Cfg B1 In Flt Cfg B2 In Flt Cfg C1 In Flt Cfg C2 In Flt Cfg D1 In Flt Cfg D2 In	Sets the Logic Command data that is sent to the drive if any of the following is true: • Parameter 21 - [Comm Flt Action] is set to "Send Flt Cfg" and communications are disrupted. • Parameter 22 - [Idle Flt Action] is set to "Send Flt Cfg" and the scanner is idle. • Parameter 41 - [Peer Flt Action] is set to "Send Flt Cfg" and communications are disrupted.
35	M-S Input	Configures the node address of the node producing the peer I/O.
36	M-S Output	Selects the data produced by the scanner and consumed by the adapter.
37	Ref Adjust	Selects the data produced by the adapter and consumed by the scanner.
38	Peer A Input	Sets the percent scale factor for the Reference from the network.
39	Peer B Input	Configures the destination in the drive of the Peer I/O input.
40	Peer Cmd Mask	Configures the mask for the Logic Command word when it is received through peer input.

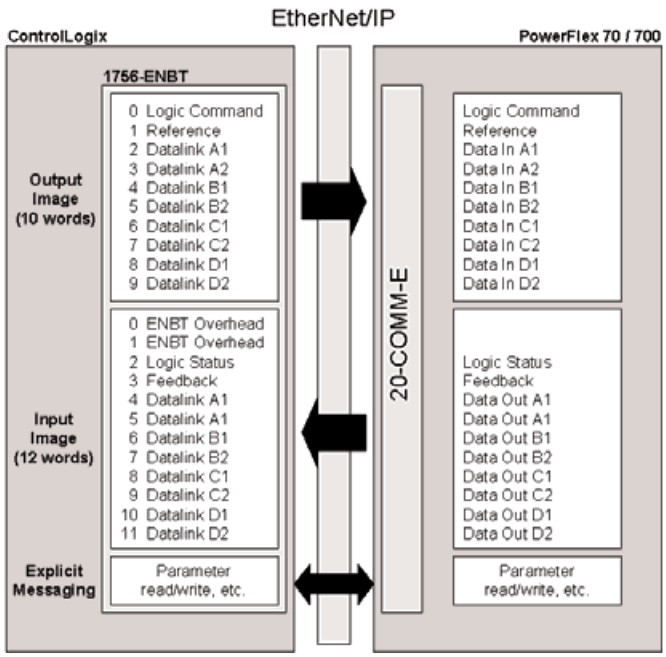
PARAMETERS

No.	Name	Description
41	Peer Fit Action	Sets the action that the adapter and drive take if the adapter detects that the EtherNet/IP communications with a peer have been disrupted.
42 43 44 45	Peer Inp Addr 1 Peer Inp Addr 2 Peer Inp Addr 3 Peer Inp Addr 4	Sets the bytes in the IP address (Addr1.Addr2.Addr3.Addr4) that specifies the device from which the adapter receives (consumes) Peer I/O data.
46	Peer Inp Timeout	Configures the time-out for a peer connection.
47	Peer Inp Enable	Determines if Peer I/O input is on or off.
48	Peer Inp Status	Displays the status of the consumed peer input connection.
49 50	Peer A Output Peer B Output	Selects the source of the Peer I/O output data. The adapter transmits this data to the network.
51	Peer Out Enable	Determines if Peer I/O output is on or off.
52	Peer Out Time	Determines the minimum time that an adapter will wait when transmitting data to a peer.
53	Peer Out Skip	Determines the maximum time that an adapter will wait when transmitting data to a peer.
54	Access Control	Determines the access to the Web interface and Web-configurable features such as e-mail notification.

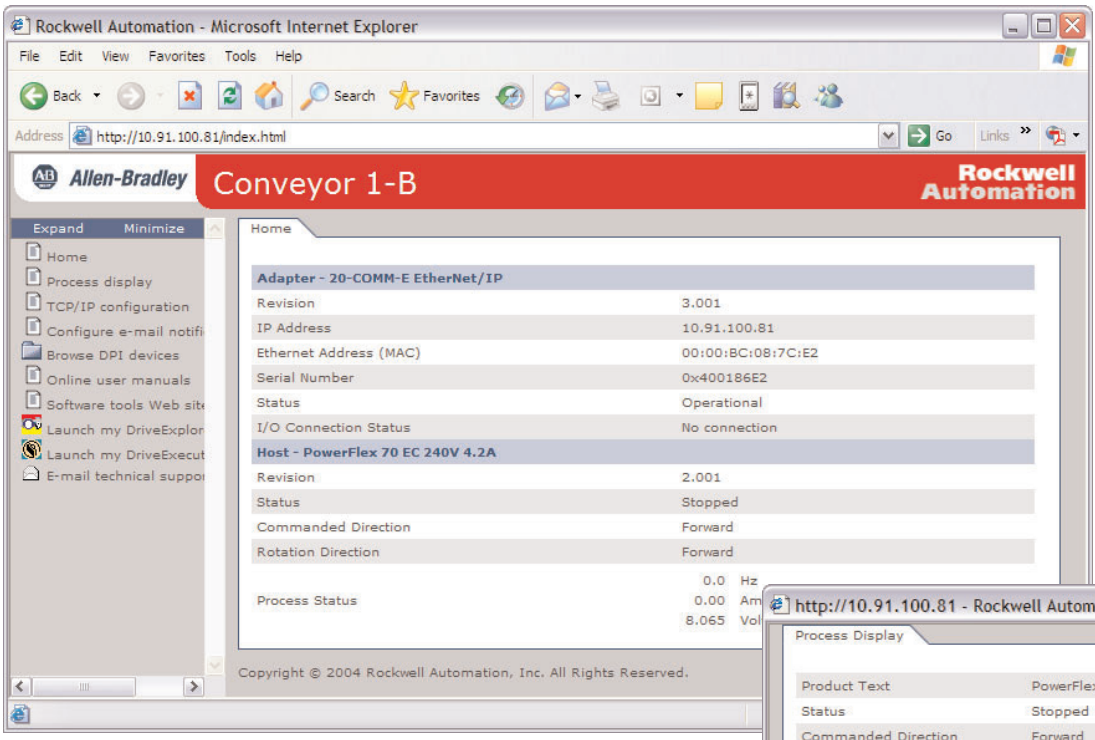
SPECIFICATIONS

Communications	Network	Protocol	EtherNet/IP
		Data Rates	10/100M bps, Half/Full Duplex
	Drive	Protocol	DPI
		Data Rates	125K or 500K
Electrical	Consumption	Drive (DPI)	370mA @ 5VDC
		Network	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

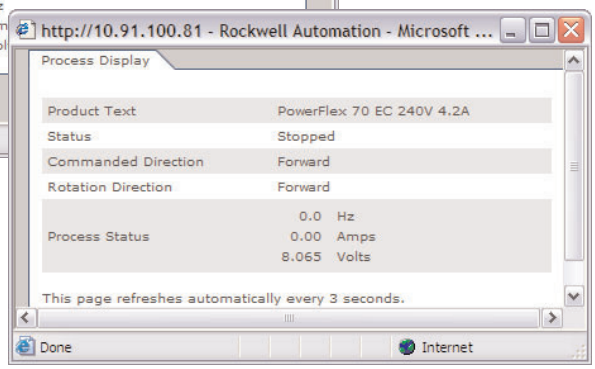
EXAMPLE I/O IMAGE (POWERFLEX 70 / 700 STANDARD)



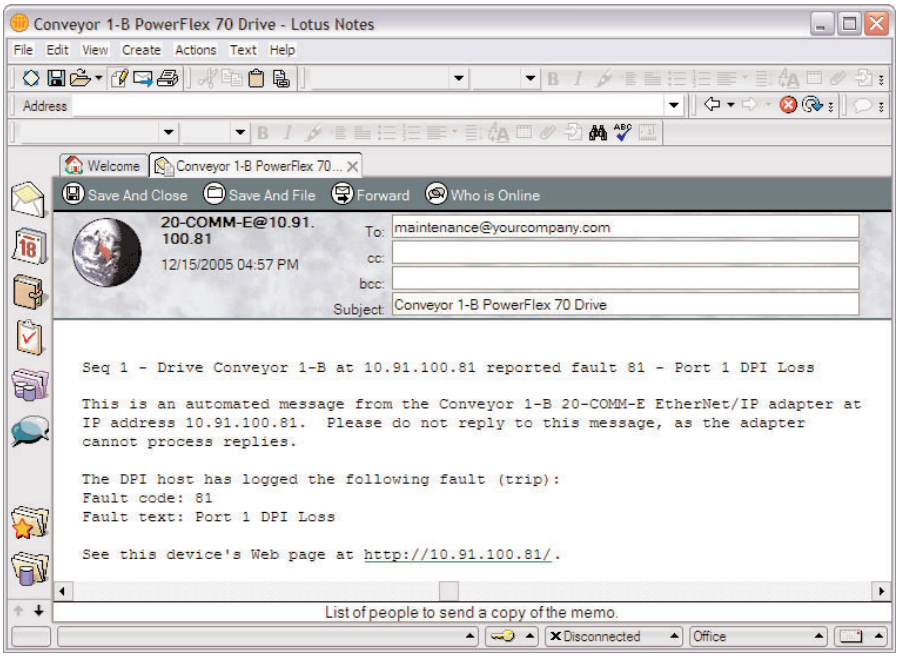
MAIN WEB PAGE



AUTO-REFRESH PROCESS DISPLAY



EXAMPLE FAULT NOTIFICATION EMAIL


Conveyor 1-B PowerFlex 70 Drive - Lotus Notes
File Edit View Create Actions Text Help
Address
Welcome
Conveyor 1-B PowerFlex 70...
Save And Close Save And File Forward Who is Online
20-COMM-E@10.91.100.81
12/15/2005 04:57 PM
To: maintenance@yourcompany.com
cc:
bcc:
Subject: Conveyor 1-B PowerFlex 70 Drive
Seq 1 - Drive Conveyor 1-B at 10.91.100.81 reported fault 81 - Port 1 DPI Loss
This is an automated message from the Conveyor 1-B 20-COMM-E EtherNet/IP adapter at IP address 10.91.100.81. Please do not reply to this message, as the adapter cannot process replies.
The DPI host has logged the following fault (trip):
Fault code: 81
Fault text: Port 1 DPI Loss
See this device's Web page at http://10.91.100.81/.
List of people to send a copy of the memo.
Disconnected
Office

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

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Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

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PRODUCT PROFILE

20-COMM-H RS485 HVAC ADAPTER

The PowerFlex® 20-COMM-H RS485 HVAC adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over Modbus RTU, Johnson Controls Metasys N2, and Siemens Building Technologies P1 networks.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Configuration Switches – The adapter has rotary switches for setting the node address (01-99) and protocol (RTU / N2 / P1). Alternatively, the switches can be disabled (00 setting), allowing the node address to be set using a configuration parameter.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

Three HVAC Protocols – Three HVAC protocols are provided in one adapter:

Modbus RTU Protocol –

- Utilizes familiar I/O control bits and words (Logic Command / Reference, Logic Status / Feedback and Datalinks A-D)
- Includes 8 configurable User Input words and 8 configurable User Output words
- Drive parameters are directly mapped to Modbus addresses for complete parameter read / write access
- Supports Modbus broadcast address "0" for global Start, Stop, Reference, etc. Individual nodes can scale their Reference (0-200%) from the global Reference command

Metasys N2 Protocol –

- Utilizes familiar I/O control bits and words (Logic Command / Reference, Logic Status / Feedback and Datalinks A-B)
- Includes 4 configurable User Input words and 2 configurable User Output words

Siemens P1 Protocol –

- Siemens Application Note 2718
- Utilizes familiar I/O control words (Logic Command / Reference, Logic Status / Feedback and Datalinks A-D.) in addition to common Siemens network points
- Includes 1 configurable User Input word and 1 configurable User Output word

PowerFlex® Communications

User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to/from the controller.

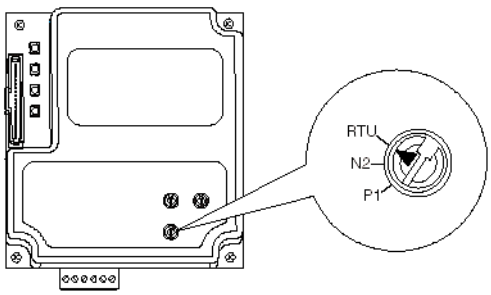
Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH, to take advantage of new firmware features as they become available.

APOGEE ANYWHERE™

PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	Net Addr Cfg	Configures the network node address if the network switches on the adapter are set to "00."
04	Net Addr Act	Displays the network address actually used by the adapter.
05	Net Rate Cfg	Configures the network data rate at which the adapter communicates.
06	Net Rate Act	Displays the network data rate actually used by the adapter.
07	Net Parity Cfg	Configures the network parity.
08	Net Parity Act	Displays the actual network parity used by the adapter.
09	Stop Bits Act	Displays the actual number of stop bits used by the selected protocol.
10	Net Chksum Type	Displays the type of checksum used by the selected protocol.
11	Network Timeout	Configures the time in seconds to be used to detect network communication loss.
12	Ref / Fdbk Size	Displays the size of the Reference/Feedback words.
13	Datalink Size	Displays the size of each Datalink word.
14	Reset Module	Used to reset the adapter or set defaults.
15	Comm Flt Action	Sets the action that the adapter will take if it detects a network failure.
16	DPI I/O Cfg	Selects the I/O that is transferred through the adapter.
17	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
18	Flt Cfg Logic	Sets the data that is sent to the drive if Parameter 15 - [Comm Flt Action] is set to "Send Flt Cfg" and the adapter times out.
19	Flt Cfg Ref	
20	Flt Cfg A1 In	
21	Flt Cfg A2 In	
22	Flt Cfg B1 In	
23	Flt Cfg B2 In	
24	Flt Cfg C1 In	
25	Flt Cfg C2 In	
26	Flt Cfg D1 In	
27	Flt Cfg D2 In	
28	Clear Counters	Clears the network diagnostic counters.
29	N2 Ref Scale	Only used if Metasys N2 protocol is selected. Determines the engineering unit sent over DPI for the Reference when 100% is set for AO#2.
30	Stop Bits Cfg	Sets the number of stop bits used by the adapter when the network protocol switch is set to "Modbus RTU".
31	RTU Ref. Adjust	Sets the percent scale factor for the Reference from the network when the net work protocol switch is set to "Modbus RTU," and broadcast messages (Modbus address "0") are sent.

PROTOCOL SELECTION



Setting	Description
RTU (Default)	Modbus RTU
N2	Metasys N2
P1	Siemens Building Technologies P1 FLN

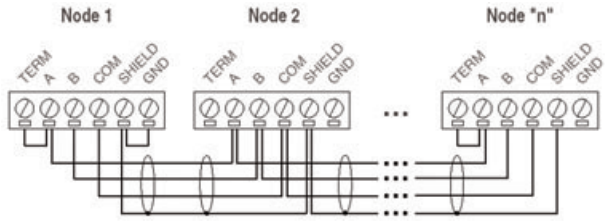
SPECIFICATIONS

Communications	Network	Protocol	Modbus RTU, Metasys N2, or Siemens P1 FLN
		Data Rates	RTU: 4800-38.4k bps N2: 9600 bps P1: 4800, 9600 bps
	Drive	Protocol	DPI
		Data Rates	125K or 500K
Electrical	Consumption	Drive (DPI)	150mA @ 5VDC
		Network	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

CONNECTOR TERMINALS

Terminal	Signal	Function
TERM	Termination	Signal RC Termination
A	Signal A	TxRxDx -
B	Signal B	TxRxDx +
COM	Common	Signal Common
SHIELD	Shield	Shield RC Termination
GND	Ground	Shield Ground Termination

WIRING DIAGRAM



SUPPORTED MODBUS RTU COMMANDS

Function Code	Description
01	Read Coil Status
02	Read Input Status
03	Read Holding Registers
04	Read Input Registers
05	Force Single Coil
06	Write Single Register
08	Diagnostics / Loop-back
16	Write Multiple Registers
23	Read / Write 4x Registers

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PRODUCT PROFILE

20-COMM-I INTERBUS™ ADAPTER

PowerFlex® Communications

The PowerFlex® 20-COMM-I Interbus adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over an Interbus network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex HIM, or drive configuration software such as DriveExplorer™ or DriveExecutive™.

I/O Messaging – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:

- Logic Command / Reference
- Logic Status / Feedback
- Datalinks - read and write up to 7 parameters

Up to 9 words of input data and 9 words of output data can be mapped to the network.

PCP Communications – PCP messages are used for explicit messaging, which involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.). The adapter supports:

- Reading / writing of drive parameters
- Reading the drive fault queue
- Reading / writing of adapter parameters
- Reading of adapter events

Compliance Tested – Certificate No. 373 issued by INTERBUS Club Deutschland E.V.

User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to/from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive, or ControlFLASH, to take advantage of new firmware features as they become available.

INTERBUS
Certified! No. 373

PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	Ref/Feedback Size	Displays the size of the Reference/Feedback words.
04	Datalink Size	Displays the size of each Datalink word.
05	Reset Module	Used to reset the adapter or set defaults.
06	Comm Flt Action	Sets the action that the adapter will take if it detects a network failure.
07	Reserved	
08	DPI I/O Config	Selects the I/O that is transferred through the adapter.
09	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
10	Flt Cfg Logic	Sets the data that is sent to the drive if Parameter 06 - [Comm Flt Action] is set to Send Flt Cfg and communications are disrupted.
11	Flt Cfg Ref	
12	Flt Cfg A1	
13	Flt Cfg A2	
14	Flt Cfg B1	
15	Flt Cfg B2	
16	Flt Cfg C1	
17	Flt Cfg C2	
18	Flt Cfg D1	
19	Flt Cfg D2	
20	PIDD W0 Cfg	Configured Process Input Data Description for Word 0 (default is Logic Status).
21	PIDD W0 Actual	Actual Process Input Data Description for Word 0.
22	PIDD W1 Cfg	Configured Process Input Data Description for Word 1 (default is Feedback).
23	PIDD W1 Actual	Actual Process Input Data Description for Word 1.
24	PIDD W2 Cfg	Configured Process Input Data Description for Word 2.
25	PIDD W2 Actual	Actual Process Input Data Description for Word 2.
26	PIDD W3 Cfg	Configured Process Input Data Description for Word 3.
27	PIDD W3 Actual	Actual Process Input Data Description for Word 3.
28	PIDD W4 Cfg	Configured Process Input Data Description for Word 4.
29	PIDD W4 Actual	Actual Process Input Data Description for Word 4.
30	PIDD W5 Cfg	Configured Process Input Data Description for Word 5.
31	PIDD W5 Actual	Actual Process Input Data Description for Word 5.
32	PIDD W6 Cfg	Configured Process Input Data Description for Word 6.
33	PIDD W6 Actual	Actual Process Input Data Description for Word 6.
34	PIDD W7 Cfg	Configured Process Input Data Description for Word 7.
35	PIDD W7 Actual	Actual Process Input Data Description for Word 7.
36	PIDD W8 Cfg	Configured Process Input Data Description for Word 8.
37	PIDD W8 Actual	Actual Process Input Data Description for Word 8.
38	PODD W0 Cfg	Configured Process Output Data Description for Word 0 (default is Logic Command).
39	PODD W0 Actual	Actual Process Output Data Description for Word 0.
40	PODD W1 Cfg	Configured Process Output Data Description for Word 1 (default is Reference).
41	PODD W1 Actual	Actual Process Output Data Description for Word 1.
42	PODD W2 Cfg	Configured Process Output Data Description for Word 2.
43	PODD W2 Actual	Actual Process Output Data Description for Word 2.
44	PODD W3 Cfg	Configured Process Output Data Description for Word 3.
45	PODD W3 Actual	Actual Process Output Data Description for Word 3.

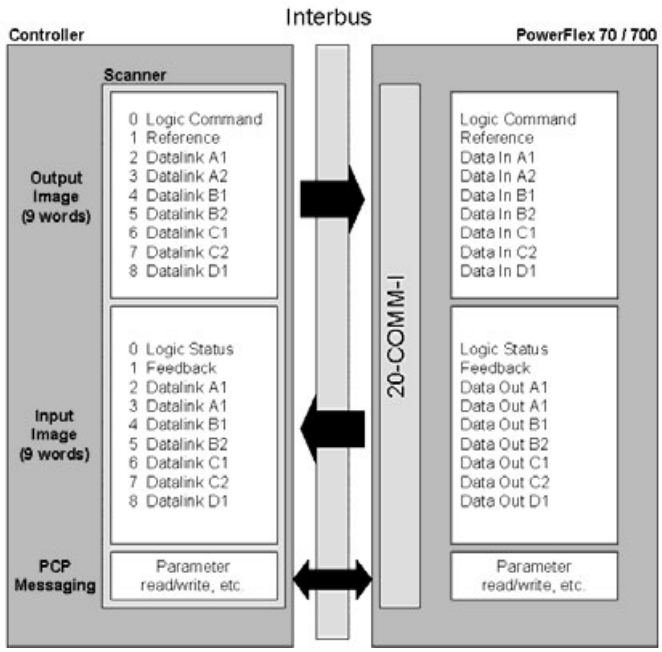
PARAMETERS

No.	Name	Description
46	PODD W4 Cfg	Configured Process Output Data Description for Word 4.
47	PODD W4 Actual	Actual Process Output Data Description for Word 4.
48	PODD W5 Cfg	Configured Process Output Data Description for Word 5.
49	PODD W5 Actual	Actual Process Output Data Description for Word 5.
50	PODD W6 Cfg	Configured Process Output Data Description for Word 6.
51	PODD W6 Actual	Actual Process Output Data Description for Word 6.
52	PODD W7 Cfg	Configured Process Output Data Description for Word 7.
53	PODD W7 Actual	Actual Process Output Data Description for Word 7.
54	PODD W8 Cfg	Configured Process Output Data Description for Word 8.
55	PODD W8 Actual	Actual Process Output Data Description for Word 8.
56	PCP Comm Cfg	Enables or disables PCP communications.
57	PCP Comm Act	Displays actual PCP Configuration status.

SPECIFICATIONS

Communications	Network	Protocol	Interbus
		Data Rates	500 kbps
	Drive	Protocol	DPI
		Data Rates	125K or 500K
Electrical	Consumption	Drive (DPI)	450mA @ 5VDC
		Network	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50081-2 and EN61000-6-2
		CTick	AS/NZS 2064, Group 1, Class A

EXAMPLE I/O IMAGE (POWERFLEX 70 / 700 STANDARD)



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PRODUCT PROFILE

20-COMM-L LonWorks™ ADAPTER

PowerFlex® Communications

The PowerFlex® 20-COMM-L LonWorks adapter provides an internal network connection for PowerFlex 70, PowerFlex 700 (standard cassette) and PowerFlex 700H drives. The adapter provides a means to control, configure and collect data over a LonWorks network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

LonMark Functional Profile: "Variable Speed Motor Drive: 6010" Support – The adapter supports the standard functional profile used by the HVAC industry for drives, which provides a common set of system network variables and configuration properties.

Additional "Manufacturer Defined" network variables – Additional "Manufacturer Defined" network variables are also provided:

- Datalinks
- Parameter Read / Write
- Metering
- Configuration

Resource Files – The following resource files are included on 3.5" disk with the adapter:

- XIF file
- Type File (TYP)
- Format File (FMT)
- Language File (ENU)
- Functional Profile Template (FPT)

The resource files can also be downloaded at: **http://www.ab.com/drives/20-comm/20-comm-l**

User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the node is taken offline
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback, Datalink, etc. data being transmitted to/from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH, to take advantage of new firmware features as they become available.

LONMARK®3

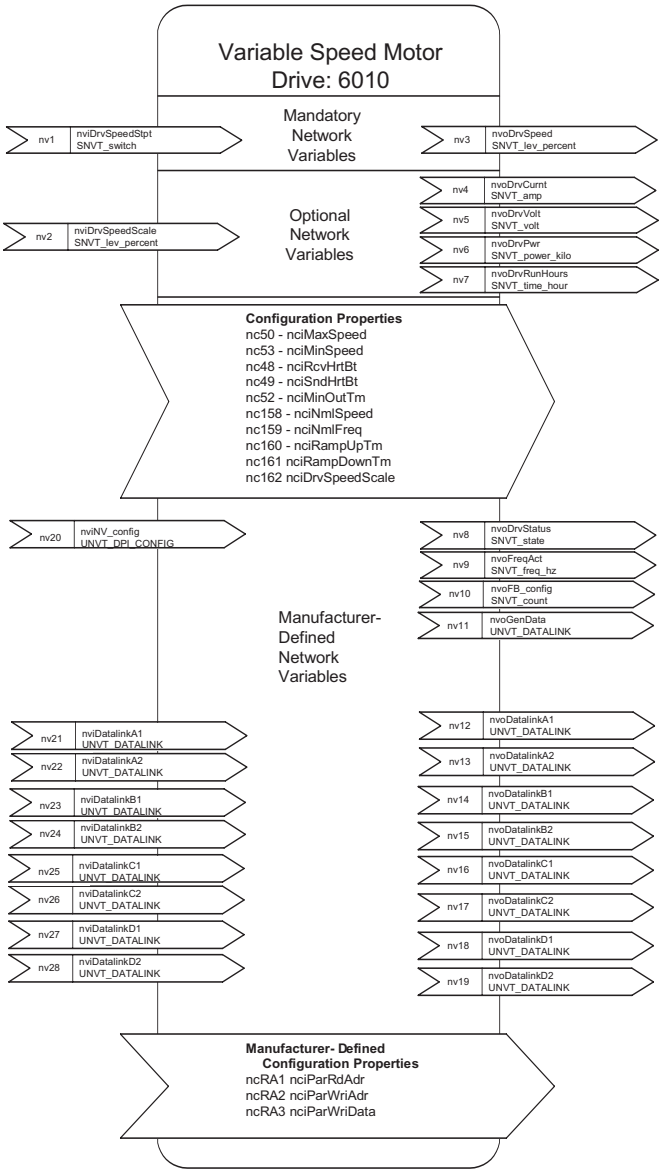
PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	Ref/Feedback Size	Displays the size of the Reference/Feedback words.
04	Datalink Size	Displays the size of each Datalink word.
05	Reset Module	Used to reset the adapter or set defaults.
06	Comm Flt Action	Sets the action that the adapter will take if it detects that network communications have been disrupted.
07	RcvHrtBeat Time	Sets the time used as a Receive Heartbeat timer and is used to trigger the fault action in Parameter 6 - [Comm Flt Action].
08	Idle Flt Action	Sets the action that the adapter will take during offline/disable occurrences.
09	DPI I/O Config	Selects the I/O that is transferred through the adapter.
10	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
11	Flt Cfg Logic	Sets the data that is sent to the drive if Parameter 6 - [Comm Flt Action] is set to Send Flt Cfg and communications are disrupted.
12	Flt Cfg Ref	
13	Flt Cfg A1 In	
14	Flt Cfg A2 In	
15	Flt Cfg B1 In	
16	Flt Cfg B2 In	
17	Flt Cfg C1 In	
18	Flt Cfg C2 In	
19	Flt Cfg D1 In	
20	Flt Cfg D2 In	
21	Send Service Pin	Used to broadcast a LON Service Pin Message from the Neuron Chip.
22	Clear Counters	Clears the network diagnostic counters.
23	DrvSpeedParam	Sets the PowerFlex drive parameter number to be used with nvoDrvSpeed.
24	DrvCurntParam	Sets the PowerFlex drive parameter number to be used with nvoDrvCurnt.
25	DrvPwrParam	Sets the PowerFlex drive parameter number to be used with nvoDrvPwr.
26	DrvVoltParam	Sets the PowerFlex drive parameter number to be used with nvoDrvVolt.
27	DrvRunHoursParam	Sets the PowerFlex drive parameter number to be used with nvoDrvRunHours.
28	DrvFrqActParam	Sets the PowerFlex drive parameter number to be used with nvoDrvFreqAct.
29	NmlFreqParam	Sets the PowerFlex drive parameter number to be used with nciNmlFreq.
30	NmlSpeedParam	Sets the PowerFlex drive parameter number to be used with nciNmlSpeed.
31	MaxSpeedParam	Sets the PowerFlex drive parameter number to be used with nciMaxSpeed.
32	MinSpeedParam	Sets the PowerFlex drive parameter number to be used with nciMinSpeed.
33	RampUpTmParam	Sets the PowerFlex drive parameter number to be used with nciRampUpTm.
34	RampDownTmParam	Sets the PowerFlex drive parameter number to be used with nciRampDownTm.

SPECIFICATIONS

Communications	Network	Protocol	LonWorks
		Data Rates	78 kbps
	Drive	Protocol	DPI
		Data Rates	125K or 500K
Electrical	Consumption	Drive (DPI)	200mA @ 5VDC
		Network	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50081-2 and EN61000-6-2
		CTick	AS/NZS 2064, Group 1, Class A

VARIABLE SPEED MOTOR DRIVE PROFILE



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PRODUCT PROFILE

20-COMM-P PROFIBUS DP™ ADAPTER

PowerFlex® Communications

The PowerFlex® 20-COMM-P PROFIBUS DP adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over a PROFIBUS DP network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Configuration Switches – The adapter has rotary switches for setting the node address (01-99). Alternatively, the switches can be disabled (00 setting), allowing the node address to be set using a configuration parameter.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

I/O Messaging – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:

- Logic Command / Reference
- Logic Status / Feedback
- Datalinks - read and write up to 8 parameters

Explicit Messaging – Explicit messaging involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.). The adapter supports:

- Reading / writing of drive parameters
- Reading the drive fault queue
- Reading / writing of adapter or other peripheral parameters

Compliance Tested – Certificate No. Z00652 issued by PROFIBUS Nutzerorganisation E.V.

User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command and Reference data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference and Logic Status/Feedback data being transmitted to/from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive, or ControlFLASH, to take advantage of new firmware features as they become available.

PROFI® PROCESS FIELD BUS

PARAMETERS

No.	Name	Description
01	DPI Port	Port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	P-DP Addr Cfg	Configures the node address to use if the Node address switches are set to "00".
04	P-DP Addr Actual	Displays the node address actually used by the adapter.
05	P-DP Rate Actual	Displays the data rate actually used by the adapter.
06	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
07	Datalink Size	Displays the size of each Datalink word.
08	Reset Module	Used to reset the adapter or set defaults.
09	Comm Flt Action	Sets the action that the adapter will take if it detects that communications have been disrupted.
10	Idle Flt Action	Sets the action that the adapter will take if it detects that the scanner is idle.
11	DPI I/O Config	Selects the I/O that is transferred through the adapter.
12	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
13 14 15 16 17 18 19 20 21 22	Flt Cfg Logic Flt Cfg Ref Flt Cfg A1 Flt Cfg A2 Flt Cfg B1 Flt Cfg B2 Flt Cfg C1 Flt Cfg C2 Flt Cfg D1 Flt Cfg D2	Sets the data that is sent to the drive if any of the following is true: • Parameter 09 - [Comm Flt Action] is set to Send Flt Cfg and communications are disrupted. • Parameter 10 - [Idle Fault Action] is set to Send Flt Cfg and the scanner is put into Program mode.
23	Parameter Mode	Sets the format used when performing explicit messages: • Par Prot (Parameter Protocol) is used to read or write single parameters. • DPI Par Prot is reserved for future use.
24	P-DP State	Displays the state of the PROFIBUS controller.

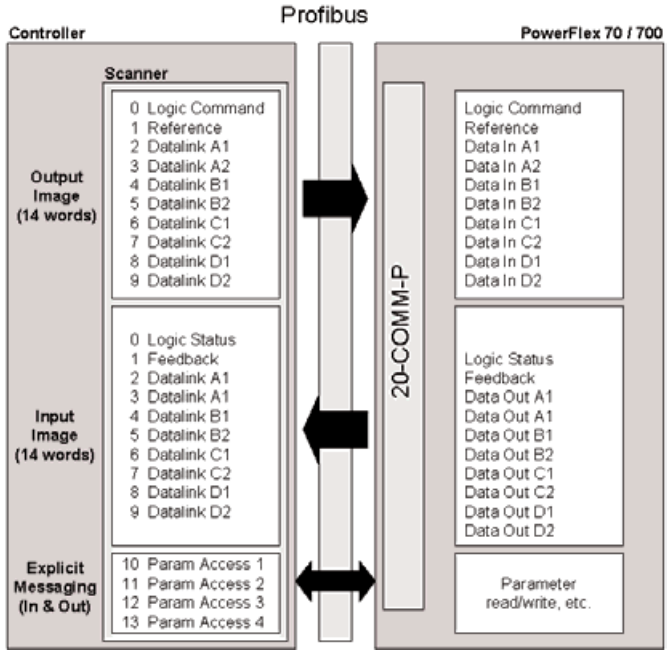
GSD FILE

The GSD file is provided on 3.5" disk with the adapter and can be downloaded at: **http://www.ab.com/drives/20-comm/20-comm-p/index.html**

SPECIFICATIONS

Communications	Network	Protocol	PROFIBUS
		Data Rates	9600-12M bps (autobauds)
	Drive	Protocol	DPI
		Data Rates	125K or 500K
Electrical	Consumption	Drive (DPI)	370mA @ 5VDC
		Network	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50081-2 and EN61000-6-2
		CTick	AS/NZS 2064, Group 1, Class A

EXAMPLE I/O IMAGE - SINGLE MODE



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PRODUCT PROFILE

20-COMM-Q ControlNet™ FIBER ADAPTER

PowerFlex® Communications

The PowerFlex® 20-COMM-Q ControlNet coax adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over a ControlNet network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Configuration Switches – The adapter has rotary switches for setting the node address. Alternatively, the switches can be disabled, allowing the node address to be set using a configuration parameter.

Redundancy – The adapter provides a redundant media connection for improved media reliability. The adapter also supports multicast and redundant owner/hot backup.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex HIM, or drive configuration software such as DriveExplorer™ or DriveExecutive™.

DPI Routing – Allows DriveExplorer to connect to a PowerFlex drive using a 1203-SSS serial converter and then route out over ControlNet to access other Allen-Bradley drives. This eliminates the need for a separate network tap and interface.

I/O Messaging (Scheduled) – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:
- Logic Command / Reference
- Logic Status / Feedback
- Datalinks - read and write up to 8 parameters

Explicit Messaging (Unscheduled) – Explicit messaging involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.). The adapter supports the reading / writing of parameters, etc. in the drive and any connected DPI peripheral(s).

User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:
- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:
- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to/from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH, to take advantage of new firmware features as they become available.

ControlNet™

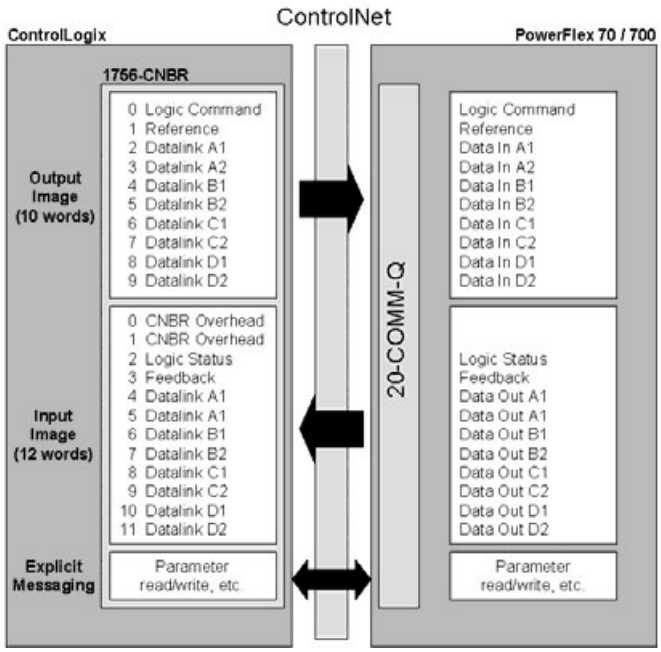
PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	CN Addr Cfg	Configures the ControlNet node address if the Node Address Switches are set to "00."
04	CN Addr Act	Displays the ControlNet node address actually used by the adapter.
05	CN Rate Cfg	Configures the ControlNet data rate (megabits per second) at which the adapter communicates.
06	CN Rate Act	Displays the ControlNet data rate (megabits per second) actually used by the adapter.
07	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
08	Datalink Size	Displays the size of each Datalink word.
09	Reset Module	Used to reset the adapter or set defaults.
10	Comm Flt Action	Sets the action that the adapter will take if it detects a network failure.
11	Idle Flt Action	Sets the action that the adapter will take if the adapter detects that the scanner is idle.
12	CN Active Cfg	Displays the source from which the adapter node address is taken.
13	DPI I/O Cfg	Selects the I/O that is transferred through the adapter.
14	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
15 16 17 18 19 20 21 22 23 24	Flt Cfg Logic Flt Cfg Ref Flt Cfg A1 Flt Cfg A2 Flt Cfg B1 Flt Cfg B2 Flt Cfg C1 Flt Cfg C2 Flt Cfg D1 Flt Cfg D2	Sets the data that is sent to the drive if any of the following is true: • Parameter 10 - [Comm Flt Action] is set to "Send Flt Cfg" and communications are disrupted. • Parameter 11 - [Idle Flt Action] is set to "Send Flt Cfg" and the scanner is idle.
25	M-S Input	Selects the data produced by the adapter and consumed by the scanner.
26	M-S Output	Selects the data produced by the adapter and consumed by the scanner.
27	Ref Adjust	Sets the percent scale factor for the Reference from the network.

SPECIFICATIONS

Communications	Network	Protocol	ControlNet
		Data Rates	5Mbps
	Drive	Protocol	DPI
		Data Rates	125K or 500K
Electrical	Consumption	Drive (DPI)	275mA @ 5VDC
		Network	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-M91
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

EXAMPLE I/O IMAGE (POWERFLEX 70 / 700 STANDARD)



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PRODUCT PROFILE

20-COMM-R REMOTE I/O™ ADAPTER

PowerFlex® Communications

The PowerFlex® 20-COMM-R Remote I/O adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a means to control, configure and collect data over a Remote I/O network.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Configuration Switches – The adapter has rotary switches for setting the node address (0-77) and DIP switches for setting the network data rate (57.6K/115K/230K), rack size, group number, and last group in rack. Alternatively, the switches can be disabled to allow these settings to be configured using parameters.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

I/O Messaging – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:

- Logic Command / Reference
- Logic Status / Feedback
- Datalinks - read and write up to 8 parameters

Explicit Messaging – Explicit messaging involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.). The adapter supports the reading / writing of parameters, etc. in the drive and to any connected DPI peripheral(s).

Rack Size – Two rack sizes can be configured:

- 1/4 Rack - Logic Command/Status
- 1/2 Rack - Logic Command/Reference and Logic Status/Feedback

Block Transfer is always enabled and is also used for I/O messaging.

User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to/from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH, to take advantage of new firmware features as they become available.

PARAMETERS

No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	CN Addr Cfg	Sets the node address if the Data Rate switch is set to "PGM" (Program).
04	CN Addr Act	Displays the DF1 node address actually used by the adapter.
05	CN Rate Cfg	Sets the DF1 data rate (bits or kilobits per second) at which the adapter communicates when the Data Rate switch is set to "PGM" (Program).
06	CN Rate Act	Displays the DF1 data rate (bits or kilobits per second) actually used by the adapter.
07	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
08	Datalink Size	Displays the size of each Datalink word.
09	Reset Module	Used to reset the adapter or reset defaults.
10	Comm Flt Action	Sets the action that the adapter will take if it detects that communications have been disrupted.
11	Active Cfg	Displays the source from which the adapter node address and data rate are taken (switches or parameters).
12	DPI I/O Config	Selects the I/O that is transferred through the adapter.
13	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
14	Flt Cfg Logic	Sets the data that is sent to the drive if Parameter 10 - [Comm Flt Action] is set to "Send Flt Cfg" and communications are disrupted.
15	Flt Cfg Ref	
16	Flt Cfg A1	
17	Flt Cfg A2	
18	Flt Cfg B1	
19	Flt Cfg B2	
20	Flt Cfg C1	
21	Flt Cfg C2	
22	Flt Cfg D1	
23	Flt Cfg D2	
24	CRC/BCC Cfg	Sets the method for error detection (BBC or CRC) in data communications.
25	CRC/BCC Act	Displays the actual error detection method (BBC or CRC)used for data communications.
26	Dup Msg Detect	Determines if the adapter ignores duplicate messages.

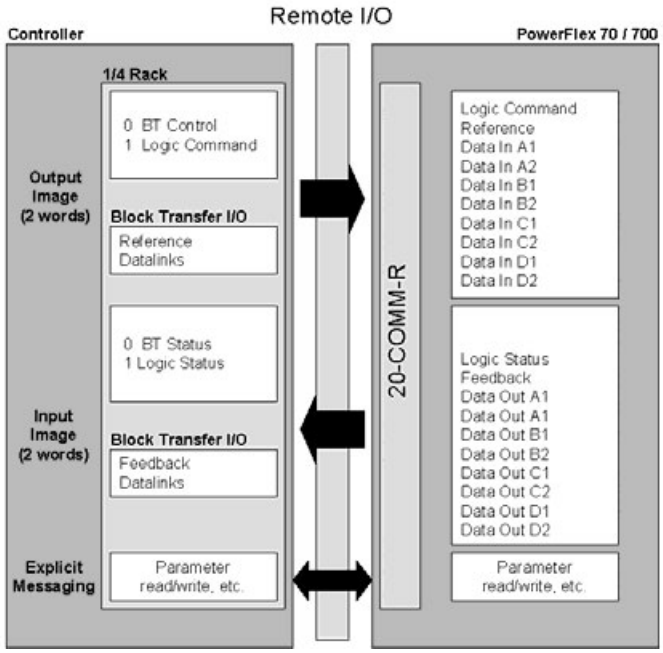
DIP SWITCH SETTINGS

Switches	Setting		Description
SW 1 and SW 2	1	2	Switches are used together to set the starting module group:
	0	0	Group 0 (Default)
	1	0	Group 2
	0	1	Group 4
	1	1	Group 6 – Only used if SW 4 is set to "0" (1/4 rack).
SW 3	0		Not the last RIO rack (Default)
	1		Last RIO group within the rack
SW 4	0		1/4 rack (Default)
	1		1/2 rack
SW 5	0		Not Used
SW 6	0		Not Used
SW 7 and SW 8	7	8	Switches are used together to set the Remote I/O baud rate:
	0	0	57.6 kbps (Default)
	1	0	115.2 kbps
	0	1	230.4 kbps
	1	1	Disable all hardware switches. The adapter uses the following parameters instead of switches: 3 - [RIO Addr Cfg] for the rack address 5 - [RIO Rate Cfg] for the baud rate 25 - [Start RIO Group] for the starting module group 26 - [Last RIO Rack] for the last physical rack 27 - [Rack Size] for the rack size

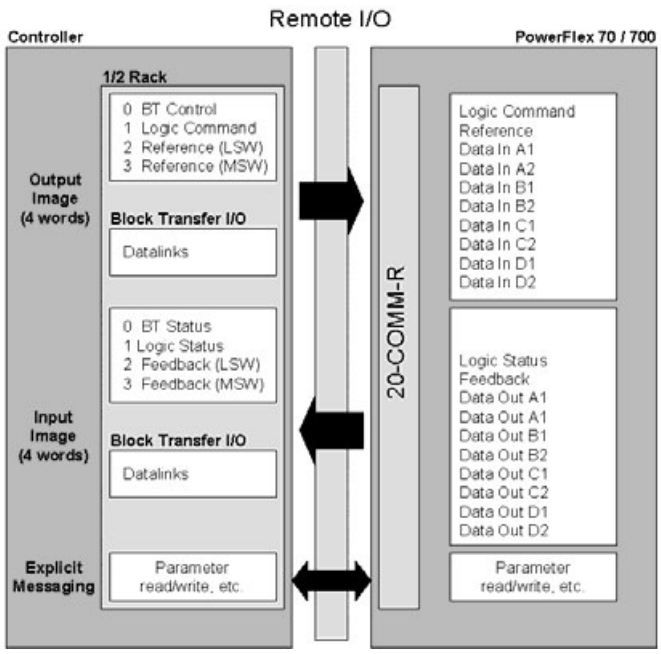
SPECIFICATIONS

Communications	Network	Protocol	Remote I/O
		Data Rates	57.6, 115.2, 230.4 kbps
	Drive	Protocol	DPI
		Data Rates	125K or 500K
Electrical	Consumption	Drive (DPI)	250mA @ 5VDC
		Network	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

EXAMPLE I/O IMAGE –1/4 RACK



EXAMPLE I/O IMAGE –1/2 RACK



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PRODUCT PROFILE

20-COMM-S RS485 DF1™ ADAPTER

PowerFlex® Communications

The PowerFlex® 20-COMM-S RS485 DF1 adapter provides an internal network connection for PowerFlex 70, 700, 700H and 700S AC drives, and other DPI-based host devices. The adapter provides a simple means to multi-drop PowerFlex drives for connectivity to DriveExplorer™ when other networks, such as DeviceNet™, are not being used.

The 20-COMM-S can also be used with Allen-Bradley controllers for non time-critical applications involving a simple network to control PowerFlex drives and read / write parameters.

PRODUCT HIGHLIGHTS

Internal Mount – The adapter mounts internal to the drive to save panel space, and is field installable.

Configuration Switches – The adapter has rotary switches for setting the node address and the network data rate. Alternatively, the switches can be disabled, allowing the node address to be set using a configuration parameter.

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

DPI Routing – Allows DriveExplorer to connect to a PowerFlex drive using a 1203-SSS serial converter and then route out over the network to access other Allen-Bradley drives.

DF1 Messaging – DF1 Messaging can be used by Allen-Bradley controllers to transfer data to and from the drive, including control data. The following data can be sent and received by the adapter using N40:/N41: file addressing:

- Logic Command / Reference
- Logic Status / Feedback
- Datalinks - read and write up to 8 parameters
- Explicit Messaging - read / write drive parameters using Block Transfer Emulation

User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to/from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH, to take advantage of new firmware features as they become available.

PARAMETERS

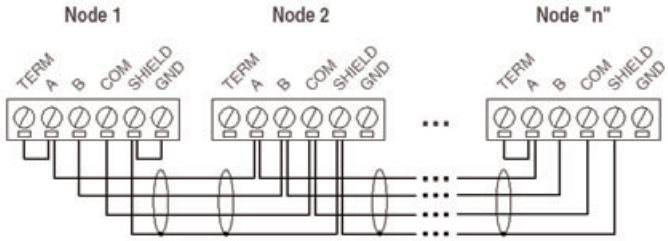
No.	Name	Description
01	DPI Port	Displays the port to which the adapter is connected.
02	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
03	CN Addr Cfg	Sets the node address if the Data Rate switch is set to "PGM" (Program).
04	CN Addr Act	Displays the DF1 node address actually used by the adapter.
05	CN Rate Cfg	Sets the DF1 data rate (bits or kilobits per second) at which the adapter communicates when the Data Rate switch is set to "PGM" (Program).
06	CN Rate Act	Displays the DF1 data rate (bits or kilobits per second) actually used by the adapter.
07	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
08	Datalink Size	Displays the size of each Datalink word.
09	Reset Module	Used to reset the adapter or reset defaults.
10	Comm Flt Action	Sets the action that the adapter will take if it detects that communications have been disrupted.
11	Active Cfg	Displays the source from which the adapter node address and data rate are taken (switches or parameters).
12	DPI I/O Config	Selects the I/O that is transferred through the adapter.
13	DPI I/O Active	Displays the I/O that the adapter is actively transmitting.
14	Flt Cfg Logic	Sets the data that is sent to the drive if Parameter 10 - [Comm Flt Action] is set to "Send Flt Cfg" and communications are disrupted.
15	Flt Cfg Ref	
16	Flt Cfg A1	
17	Flt Cfg A2	
18	Flt Cfg B1	
19	Flt Cfg B2	
20	Flt Cfg C1	
21	Flt Cfg C2	
22	Flt Cfg D1	
23	Flt Cfg D2	
24	CRC/BCC Cfg	Sets the method for error detection (BBC or CRC) in data communications.
25	CRC/BCC Act	Displays the actual error detection method (BBC or CRC)used for data communications.
26	Dup Msg Detect	Determines if the adapter ignores duplicate messages.

SPECIFICATIONS

Communications	Network	Protocol	DFI
		Data Rates	1200-38.4k bps
	Drive	Protocol	DPI
		Data Rates	125K or 500K
Electrical	Consumption	Drive (DPI)	150mA @ 5VDC
		Network	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

CONNECTOR TERMINALS

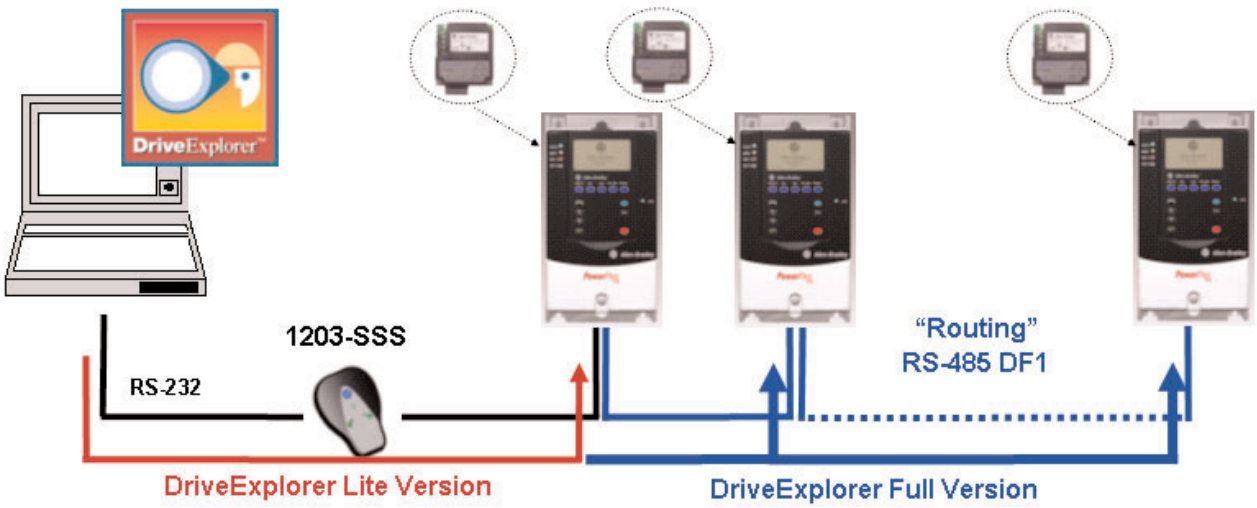
Terminal	Signal	Function
TERM	Termination	Signal RC Termination
A	Signal A	TxRxDx -
B	Signal B	TxRxDx +
COM	Common	Signal Common
SHIELD	Shield	Shield RC Termination
GND	Ground	Shield Ground Termination



N-FILE SUMMARY

Data Category	N-File Address	Description
Explicit Messaging	N40:0-63	Block Transfer Emulation
I/O Messaging	N41:0	Logic Command / Status
	N41:1-2	Reference / Feedback
	N41:3-18	Datalinks A-D
DPI Port Config	N42:3	Comms Time-Out Value

EXAMPLE SYSTEM



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PRODUCT PROFILE

1203-SSS RS232 DF1™ MODULE

PowerFlex® Communications

The 1203-SSS AnaCANda provides an RS-232 DF1 connection to PowerFlex® 70, 700, 700H and 700S AC drives, other DPI-based host devices, and legacy SCANport-based host devices. The adapter provides a means for drive software tools, such as DriveExplorer™ and DriveExecutive™, to communicate with drive products.

PRODUCT HIGHLIGHTS

External Connection – The module connects externally and is powered by the drive.

DPI Routing – Allows DriveExplorer to connect to a PowerFlex drive using a 1203-SSS serial converter and then route out over EtherNet/IP™, ControlNet™, DeviceNet™, or RS-485 DF1 to access other Allen-Bradley drives (1-to-many connection). This eliminates the need for a separate network connection and interface.

Legacy SCANport Connectivity – Use the 1203-SSS with DriveExplorer or DriveManager™ to connect with 1305 and 1336 PLUS II drives, and other SCANport-based host products.

Use the 1203-SFC cable (supplied with the 1203-SSS) to connect directly to 1203-GU6 DeviceNet, 1203-CN1 ControlNet, or 1203-EN1 EtherNet/IP modules, and route over the network to access other Allen-Bradley drives.

DriveExplorer Lite Included – A DriveExplorer Lite CD is included with the 1203-SSS. DriveExplorer Lite is freeware and can also be downloaded at: **http://www.ab.com/drives/driveexplorer/free_download.html**

Flash Upgradeable – The module can be flash updated in the field using DriveExplorer, DriveExecutive or ControlFLASH, to take advantage of new firmware features as they become available. The module is also the primary connection mechanism for flashing drives and other peripherals.

ACCESSORIES

Do you have a PC with only a USB connection? Use a USB to Serial adapter, such as an Allen-Bradley 9300-USBS, to connect to the RS232 side of the 1203-SSS. The adapter is a small, portable unit with no AC power required. It has also been tested with Allen-Bradley DriveExplorer and DriveExecutive software tools.

Do you want to connect to a drive without having to open the enclosure door? Use a GracePort™ interface, such as a P-A19-B3 (Nema 4/12 interface) or P-A19-F3R0 (NEMA 4/12 interface with AC outlet), available from Grace Engineered Products Inc. **(http://www.grace-eng.com)**.

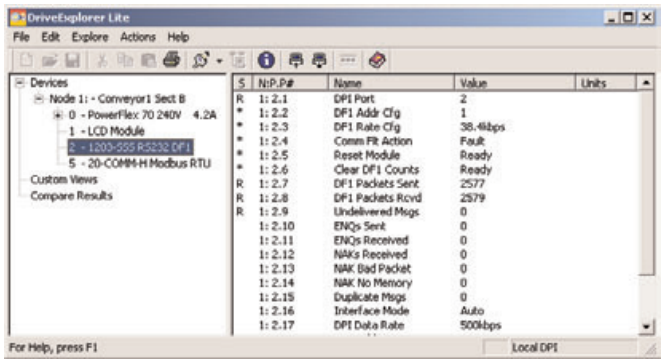
PARAMETERS

No.	Name	Description
01	Adapter Port	Displays the port to which the adapter is connected.
02	DF1 Addr Cfg	Configures the DF1 address used for the serial converter.
03	DF1 Rate Cfg	Configures the data rate used for the serial port.
04	Comm Flt Action	Sets the action that the module will take if it detects that communications have been disrupted.
05	Reset Module	Used to reset the adapter or reset defaults.
06	Clear DF1 Counts	Used to clear the DF1 statistical parameters (7-15).
07	DF1 Packets Sent	Displays the number of DF1 packets sent by the serial converter.
08	DF1 Packets Rcvd	Displays the number of DF1 packets received by the serial converter.
09	Undelivered Msgs	Displays the number of DF1 packets sent by the serial converter and not acknowledged.
10	ENQs Sent	Displays the number of ENQs sent by the serial converter.
11	ENQs Received	Displays the number of ENQs received by the serial converter.
12	NAKs Received	Displays the number of NAKs received by the serial converter.
13	NAK Bad Packet	Displays the number of NAKs received by the serial converter because of bad packets.
14	NAK No Memory	Displays the number of NAKs received by the serial converter because of insufficient buffer memory.
15	Duplicate Msgs	Displays the number of duplicate messages sent by the serial converter.
16	Interface Select	Selects whether the serial converter will autodetect DPI or SCANport devices and use the appropriate protocol.
17	DPI Data Rate	Displays the data rate (kilobits per second) used by the drive.
18	DF1 Addr Actual	Displays the actual DF1 address used by the serial converter.
19	DF1 Rate Actual	Displays the actual data rate used by the serial converter.
20	Ref/Fdbk Size	Displays the size of the Reference/Feedback words.
21	Datalink Size	Displays the size of each Datalink word.

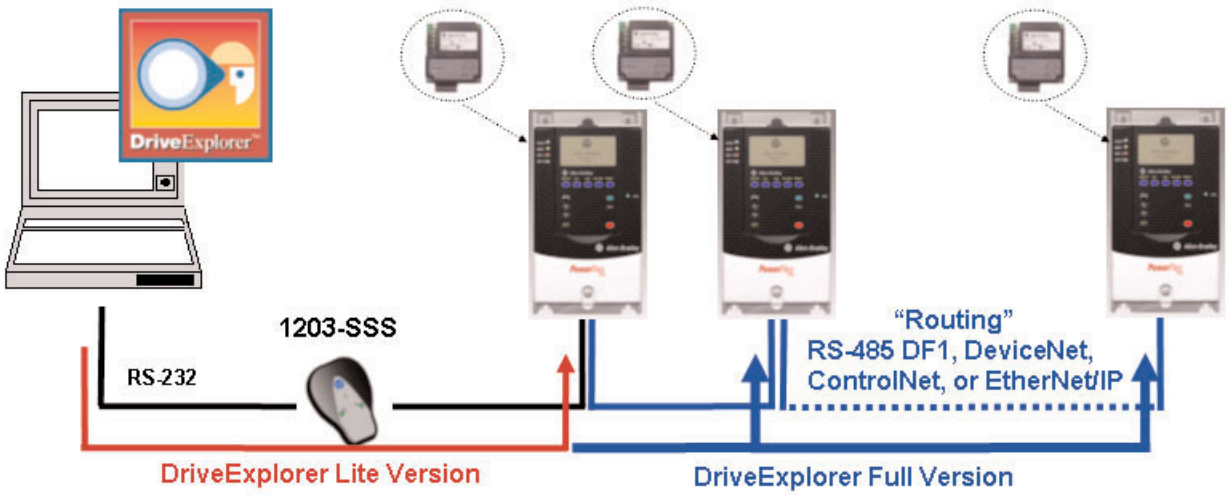
SPECIFICATIONS

Communications	Network	Protocol	DFI
		Data Rates	9600-38.4k bps
	Drive	Protocol	DPI or SCANport
		Data Rates	125K or 500K (DPI only)
Electrical	Consumption	Drive (DPI)	130mA @ 12VDC
		Network	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50178 and EN61800-3
		CTick	AS/NZS 2064, Group 1, Class A

DriveExplorer LITE


DriveExplorer Lite
File Edit Explore Actions Help
Devices
Node 1: - Conveyor1 Sect B
0 - PowerFlex 70 240V 4.2A
1 - LCD Module
5 - 1203-SSS RS232 DF1
5 - 20-COMM-H Modbus RTU
Custom Views
Compare Results
S | N:P.P# | Name | Value | Units
R 1: 2.1 DPI Port 2
* 1: 2.2 DF1 Addr Cfg 1
* 1: 2.3 DF1 Rate Cfg 38.4kbps
* 1: 2.4 Comm Flt Action Fault
* 1: 2.5 Reset Module Ready
* 1: 2.6 Clear DF1 Counts Ready
R 1: 2.7 DF1 Packets Sent 2577
R 1: 2.8 DF1 Packets Rcvd 2579
R 1: 2.9 Undelivered Msgs 0
1: 2.10 ENQs Sent 0
1: 2.11 ENQs Received 0
1: 2.12 NAKs Received 0
1: 2.13 NAK Bad Packet 0
1: 2.14 NAK No Memory 0
1: 2.15 Duplicate Msgs 0
1: 2.16 Interface Mode Auto
1: 2.17 DPI Data Rate 500kbps
For Help, press F1
Local DPI

ROUTING DIAGRAM



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PRODUCT PROFILE

1769-SM1 COMPACT I/O™ MODULE

PowerFlex® Communications

The 1769-SM1 Compact I/O module provides a direct 1769 platform connection for PowerFlex®, 70, 700, 700H and 700S drives, other DPI-based host devices, and SCANport-based Host devices such as 1305 and 1336 PLUS II drives. The 1769-SM1 can be used with the MicroLogix 1500, CompactLogix, and remote 1769-based nodes such as the 1769-ADN DeviceNet™ adapter to control, configure and collect data.

PRODUCT HIGHLIGHTS

1769 Platform Connectivity –The module can be used in 1769-based systems, such as:

- MicroLogix 1500 controllers
- CompactLogix controllers
- Remote 1769-Based node adapters (1769-ADN DeviceNet, etc.)

Three DPI/SCANport Channels – Three channels are provided, allowing any combination of up to three PowerFlex 70, 700, 700H and 700S drives (DPI) and/or SCANport (1305, 1336 PLUSII, etc.) devices to be connected per module.

I/O Messaging – I/O messaging is used to transfer time-critical data, such as data that controls the drive. The following data can be sent and received by the adapter:

- Logic Command / Reference
- Logic Status / Feedback
- Datalinks - read and write up to 8 parameters

Explicit Messaging – Explicit messaging involves non time-critical information that is typically triggered by the application (ladder program in a controller, etc.). The adapter supports the reading / writing of parameters, etc. in the drive and to any connected DPI peripheral(s).

Multiple Configuration Tool Options – A number of configuration tools can be used to configure the adapter and the connected drive. These tools include the PowerFlex HIM, or drive-configuration software such as DriveExplorer™ or DriveExecutive™.

User Configurable Fault Responses – Selects the action that the adapter and drive will take for the following two conditions:

- Idle Fault Action – the controller or scanner is idle (controller in program mode)
- Comm Fault Action – network communications have become disrupted

Available actions include:

- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the adapter zeros the I/O data transmitted to the drive
- Hold Last – the adapter continues sending the I/O data prior to the fault and the drive continues in its present state
- Send Fault Configuration – the user specifies the Logic Command, Reference, and Datalink data that is sent to the drive, allowing complete flexibility in configuring a fault action

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using a PowerFlex HIM, DriveExplorer or DriveExecutive. View actual Logic Command/Reference, Logic Status/Feedback and Datalink data being transmitted to/from the controller.

Flash Upgradeable – The adapter can be flash updated in the field using DriveExplorer, DriveExecutive, or ControlFLASH, to take advantage of new firmware features as they become available.

PARAMETERS

No.	Name	Description
01	Config Mode	Displays the module's configuration mode.
02	Reset Module	Used to reset the module or set defaults.
03	Port ID 1	Displays the port number to which CH1 is connected.
04	Data Rate 1	Displays the data rate (kilobits per second) used by the CH1 drive.
05	Ref/Fbk Size 1	Displays the size of the Reference/Feedback words for the CH1 drive.
06	Datalink Size 1	Displays the size of each Datalink word for the CH1 drive.
07	I/O Config 1	Selects the I/O that is transferred through the module to the CH1 drive.
08	I/O Actual 1	Displays the I/O actively transmitted by the module for the CH1 drive.
09	Idle Action 1	Sets the action that the module will take if it detects that the controller was switched to Program or Test mode.
10	Flt Cfg Logic 1	Sets the data that is sent to the CH1 drive if Parameter 09 - [Idle Action 1] is set to "Send Flt Cfg" and the controller is put into Program or Test mode.
11	Flt Cfg Ref 1	
12	Flt Cfg A1 In1	
13	Flt Cfg A2 In1	
14	Flt Cfg B1 In1	
15	Flt Cfg B2 In1	
16	Flt Cfg C1 In1	
17	Flt Cfg C2 In1	
18	Flt Cfg D1 In1	
19	Flt Cfg D2 In1	
20	Port ID 2	Displays the port number to which CH2 is connected.
21	Data Rate 2	Displays the data rate (kilobits per second) used by the CH2 drive.
22	Ref/Fbk Size 2	Displays the size of the Reference/Feedback words for the CH2 drive.
23	Datalink Size 2	Displays the size of each Datalink word for the CH2 drive.
24	I/O Config 2	Selects the I/O that is transferred through the module to the CH2 drive.
25	I/O Actual 2	Displays the I/O actively transmitted by the module for the CH2 drive.
26	Idle Action 2	Sets the action that the module will take if it detects that the controller was switched to Program or Test mode.
27	Flt Cfg Logic 2	Sets the data that is sent to the CH1 drive if Parameter 26 - [Idle Action 2] is set to "Send Flt Cfg" and the controller is put into Program or Test mode.
28	Flt Cfg Ref 2	
29	Flt Cfg A1 In2	
30	Flt Cfg A2 In2	
31	Flt Cfg B1 In2	
32	Flt Cfg B2 In2	
33	Flt Cfg C1 In2	
34	Flt Cfg C2 In2	
35	Flt Cfg D1 In2	
36	Flt Cfg D2 In2	
37	Port ID 3	Displays the port number to which CH3 is connected.
38	Data Rate 3	Displays the data rate (kilobits per second) used by the CH3 drive.
39	Ref/Fbk Size 3	Displays the size of the Reference/Feedback words for the CH3 drive.
40	Datalink Size 3	
41	I/O Config 3	Displays the size of each Datalink word for the CH3 drive.
42	I/O Actual 3	Sets the I/O that is transferred through the module to the CH3 drive.
43	Idle Action 3	Displays the I/O actively transmitted by the module for the CH3 drive.
44	Flt Cfg Logic 3	Sets the action that the module will take if it detects that the controller was switched to Program or Test mode.
45	Flt Cfg Ref 3	Sets the data that is sent to the CH3 drive if Parameter 43 - [Idle Action 3] is set to "Send Flt Cfg" and the controller is put into Program or Test mode.
46	Flt Cfg A1 In3	
47	Flt Cfg A2 In3	
48	Flt Cfg B1 In3	
49	Flt Cfg B2 In3	
50	Flt Cfg C1 In3	
51	Flt Cfg C2 In3	
52	Flt Cfg D1 In3	
53	Flt Cfg D2 In3	

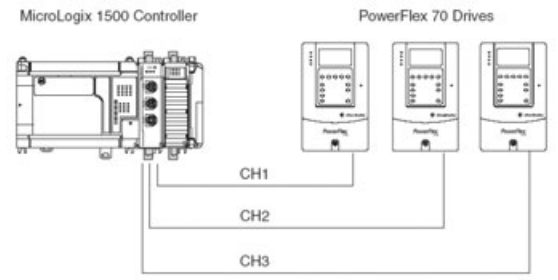
SPECIFICATIONS

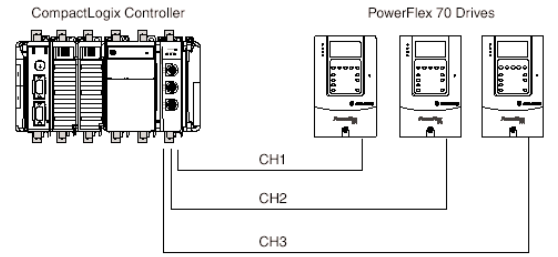
Communications	Drive	Protocol	DPI or SCANport
		Data Rates	125K or 500K (DPI only)
	Drive	Protocol	280mA @ 5VDC
		Data Rates	60mA @ 12vDC
Electrical	Consumption	Controller	130mA @ 12VDC
		Drive	N/A
Regulatory Compliance		UL	UL508C
		cUL	CAN/CSA C22.2 No. 14-1791
		CE	EN50081-2 and EN61000-6-2
		CTick	AS/NZS 2064, 1997, Group 1, Class A

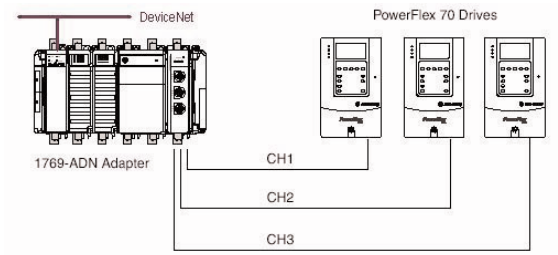
EXAMPLE I/O IMAGE (POWERFLEX 70 / 700 STANDARD)

Output Image	Input Image	Word		
		CH1	CH2	CH3
Channel Enable	Channel Status	0	4	8
Logic Command	Logic Status	1	5	9
Reference(LSW)	Feedback (LSW)	2	6	10
Reference(WSW)	Feedback (MSW)	3	7	11
Datalink In A1 (low)	Datalink Out A1 (low)	12	16	20
Datalink In A1 (high)	Datalink Out A1 (high)	13	17	21
Datalink In A2 (low)	Datalink Out A2 (low)	14	18	22
Datalink In A2 (high)	Datalink Out A2 (high)	15	19	23
Datalink In B1 (low)	Datalink Out B1 (low)	24	28	32
Datalink In B1 (high)	Datalink Out B1 (high)	25	29	33
Datalink In B2 (low)	Datalink Out B2 (low)	26	30	34
Datalink In B2 (high)	Datalink Out B2 (high)	27	31	35
Datalink In C1 (low)	Datalink Out C1 (low)	36	40	44
Datalink In C1 (high)	Datalink Out C1 (high)	37	41	45
Datalink In C2 (low)	Datalink Out C2 (low)	38	42	46
Datalink In C2 (high)	Datalink Out C2 (high)	39	43	47
Datalink In D1 (low)	Datalink Out D1 (low)	48	52	56
Datalink In D1 (high)	Datalink Out D1 (high)	49	53	57
Datalink In D2 (low)	Datalink Out D2 (low)	50	54	58
Datalink In D2 (high)	Datalink Out D2 (high)	51	55	59

EXAMPLE SYSTEMS







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PRODUCT PROFILE

DPI WIRELESS INTERFACE MODULE

The DPI Wireless Interface Module (WIM) provides a wireless communication interface between a Pocket PC, laptop computer or desktop computer equipped with *Bluetooth*® wireless technology, and any Allen-Bradley® product supporting the DPI™ (or SCANport™) protocol. Connectivity includes the entire PowerFlex® 7-Class Family of drives and peripherals, and legacy products including the line of Bulletin 1336 AC drives.

PRODUCT HIGHLIGHTS

Multiple Enclosure Styles – The DPI WIM is offered in two different form-factors to meet your environment needs:
- NEMA 1 (cat. no. 20-WIM-N1)
- NEMA 4 (cat. no. 20-WIM-N4S)

Versatile Mounting – The NEMA 1 DPI WIM can be installed in a NEMA 1 DPI HIM bezel (20-HIM-B1) mounted on the front of an enclosure door, or it can be installed in the HIM cradle on the front of the drive (Port 1). The NEMA 4 DPI WIM is designed for NEMA 4 and permanent-mount applications.

Multiple Tool Options – A number of tools can be used to configure and communicate with the WIM and connected drive. These tools include the PowerFlex DPI HIM, or drive-configuration software such as Pocket DriveExplorer™ for Pocket PC, DriveExplorer™ or DriveExecutive™.

DPI Routing – Connect point-to-point to a PowerFlex 7-Class drive using the DPI WIM and then route out over EtherNet/IP™, ControlNet™, DeviceNet™ or RS-485 DF1 to access other Allen-Bradley drives (1-to-many connection). This eliminates the need for a separate network connection and interface for each drive.

Legacy SCANport Connectivity – Use the DPI WIM with Pocket DriveExplorer for Pocket PC, DriveExplorer or DriveExecutive to connect with 1305 and 1336 PLUS II drives, and other SCANport-based host products.

Security – Use the security mode parameter to limit access to qualified personnel. This safety feature prevents unintended drive configuration and/or machine operation.

User Configurable Fault Response – Selects the action that the WIM and drive will take for the following condition:
- Comm Fault Action – network communications have become disrupted

Available actions include:
- Fault – the drive is faulted and stopped
- Stop – the drive is stopped using the current deceleration rate and is not faulted
- Zero Data – the WIM zeros the I/O data transmitted to the drive
- Hold Last – the WIM continues sending the I/O data prior to the fault and the drive continues in its present state

Diagnostics – Built-in diagnostics allow drive-side troubleshooting of the network connection using Pocket DriveExplorer for Pocket PC, DriveExplorer or DriveExecutive. View actual Logic Command / Speed Reference and Logic Status / Speed Feedback data being transmitted to and from the controller.

Flash Upgradeable – The DPI WIM can used to flash update its own firmware, and the firmware of other connected DPI products such as PowerFlex 7-Class drives and peripherals through Pocket DriveExplorer for Pocket PC, DriveExplorer or DriveExecutive to take full advantage of new firmware features as they become available.

PARAMETERS (DPI MODE)

No.	Name	Description
01	DPI Port	Displays the port on the drive to which the WIM is connected.
02	Comm Flt Action	Sets the action that the WIM and drive will take if the WIM detects that wireless communications are disrupted. This setting is effective only if I/O that controls the drive is transmitted through the WIM.
03	Security Mode	Enables/disables the security mode for the WIM, which prevents accessing its parameters and the connected drive for configuration.
04	Security PIN	Sets the PIN number to access WIM parameters for configuration when Parameter 03 - [Security Mode] is set to 1 = PIN Required.
05	Reset Module	Resets the adapter or sets parameter defaults.
06	Ref/Fdbk Size	Displays the size of the Speed Reference / Feedback words which is determined by the drive. The WIM automatically uses the correct size.
07	Datalink Size	Displays the size of each Datalink word which is determined by the drive. The WIM automatically uses the correct size.
08	DPI Data Rate	Displays the data rate used by the DPI drive. This data rate is set in the drive, and the WIM autobauds to it.
09	Clear DF1 Counts	Resets the DF1 statistical parameters 10 and 11 to 0 if set to "1 = Clear Counts." This parameter will be reset to "0 = Ready" after a "Clear Counts" command has been performed.
10	DF1 Packets Sent	Displays the number of DF1 packets sent by the WIM. This parameter is normally about equal to the value in parameter 11.
11	DF1 Packets Rcvd	Displays the number of DF1 packets received by the WIM. This parameter is normally about equal to the value in parameter 10.

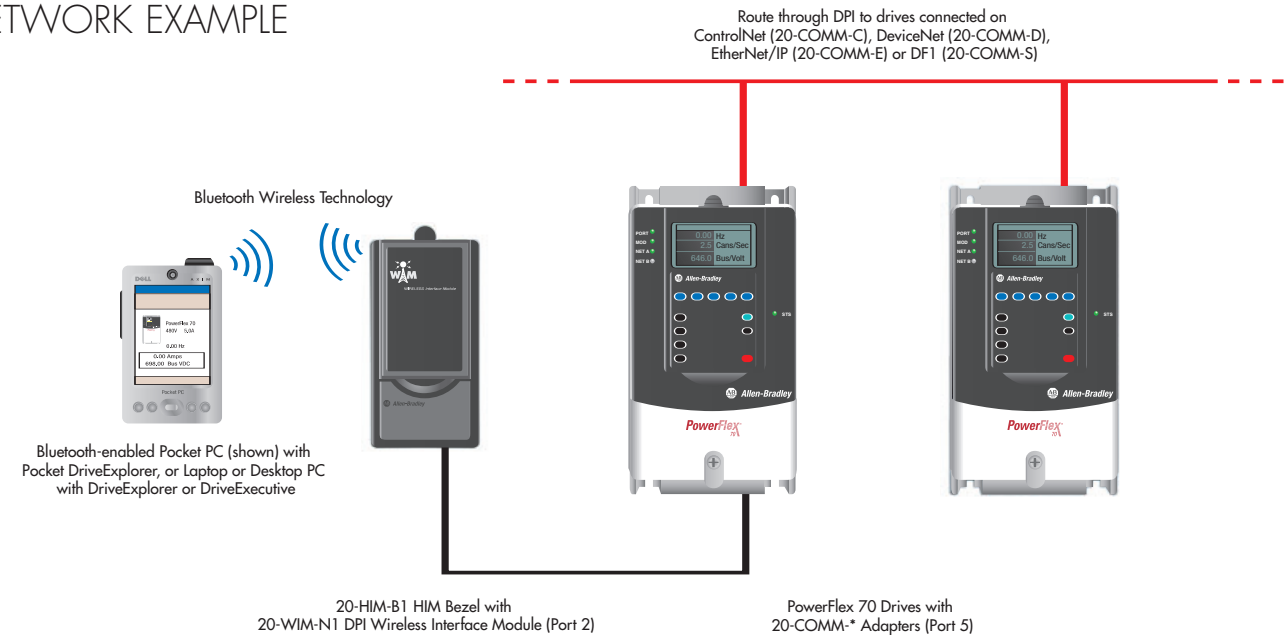
PARAMETERS (SCANport MODE)

No.	Name	Description
01	Adapter Port	Displays the port on the drive to which the WIM is connected.
02	Security Mode	Enables/disables the security mode for the WIM, which prevents accessing its parameters and the connected drive for configuration.
03	Security PIN	Sets the PIN number to access WIM parameters for configuration when Parameter 03 - [Security Mode] is set to 1 = PIN Required.
04	Comm Flt Action	Sets the action that the WIM and drive will take if the WIM detects that wireless communications are disrupted. This setting is effective only if I/O that controls the drive is transmitted through the WIM.
05	Reset Module	Resets the adapter or sets parameter defaults.
06	Clear DF1 Counts	Resets the DF1 statistical parameters 10 and 11 to 0 if set to "1 = Clear Counts." This parameter will be reset to "0 = Ready" after a "Clear Counts" command has been performed.
07	DF1 Packets Sent	Displays the number of DF1 packets sent by the WIM. This parameter is normally about equal to the value in parameter 11.
08	DF1 Packets Rcvd	Displays the number of DF1 packets received by the WIM. This parameter is normally about equal to the value in parameter 10.

SPECIFICATIONS

Radio		Transceiver	Bluetooth v1.1 Compliant
		Frequency	2.4 GHz Frequency Hopping
		Power	2.5 mW Maximum RF Output
		Range	Class II - 10 m (32.8 ft)
Communications	Drive	Protocol	Drive Peripheral Interface (DPI)
		Data Rate	125 / 500 Kbps
Electrical	Consumption	Drive	130 mA @ 12 VDC
		Network	None
Regulatory Compliance		UL	UL508C
		cUL	CAN / CSA C22.2 No. 14-M91
		CE	EN50178 and EN61800-3
		CTick	AS / NZS 2064, Group 1, Class A
		FCC ID	SNT-2XWIMNX
		IC	5450A-2XWIMNX

NETWORK EXAMPLE


Route through DPI to drives connected on ControlNet (20-COMM-C), DeviceNet (20-COMM-D), EtherNet/IP (20-COMM-E) or DF1 (20-COMM-S)
Bluetooth Wireless Technology
Bluetooth-enabled Pocket PC (shown) with Pocket DriveExplorer, or Laptop or Desktop PC with DriveExplorer or DriveExecutive
20-HIM-B1 HIM Bezel with 20-WIM-N1 DPI Wireless Interface Module (Port 2)
PowerFlex 70 Drives with 20-COMM-* Adapters (Port 5)

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PRODUCT PROFILE

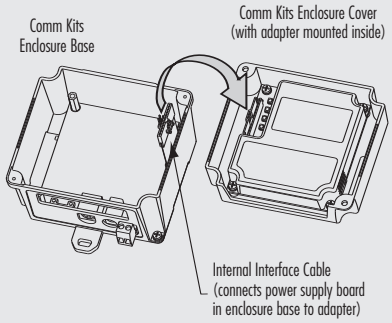
DPI EXTERNAL COMMUNICATIONS KIT

PowerFlex® Communications

The DPI External Communications Kit (20-XCOMM-DC-BASE) provides an additional network connection for a PowerFlex® 70, 700, and 700S AC drive that already has an installed 20-COMM adapter.

PRODUCT HIGHLIGHTS

Multiple Network Connectivity – Provides a secondary network connection for DPI-based PowerFlex 70, 700, and 700S AC drives. One connection can be dedicated for drive control (for example, start, stop) while additional connections may be used for software tools (for example, DriveExplorer™, DriveExecutive™), data collection, etc.


Comm Kits Enclosure Base
Comm Kits Enclosure Cover (with adapter mounted inside)
Internal Interface Cable (connects power supply board in enclosure base to adapter)

The kit is for use with only the following Allen-Bradley communication adapters (sold separately):

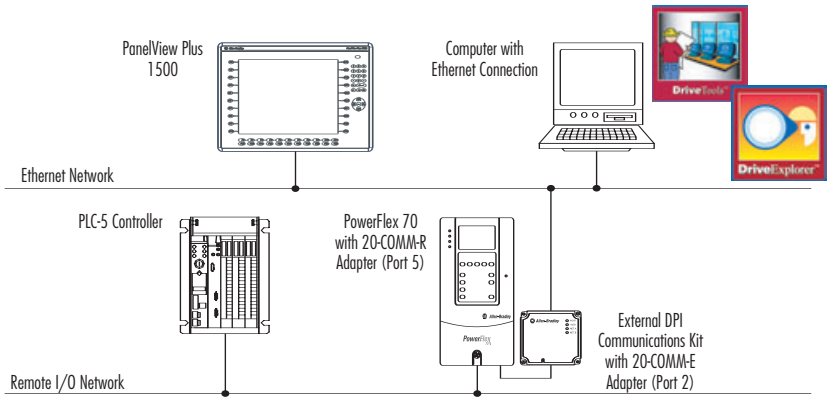
- 20-COMM-E EtherNet/IP™
- 20-COMM-C ControlNet™ (coax)
- 20-COMM-Q ControlNet™ (fiber)
- 20-COMM-D DeviceNet™ (series B or later)

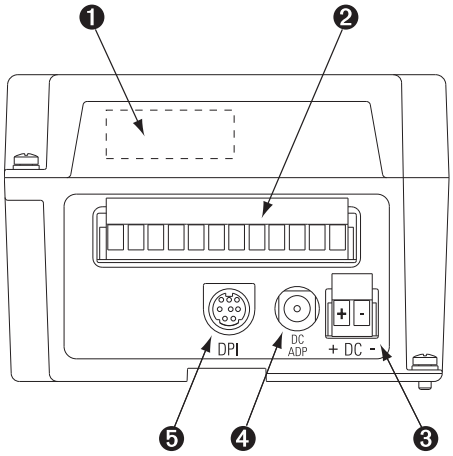
Universal Mounting – Direct panel, DIN rail, or even Zero-Stacking™ (side-by-side) mounting is possible using the all-aluminum, EMI noise-immune enclosure.

Increased System I/O – Allows for the installation of additional I/O. An optional I/O board (20-XCOMM-IO-OPT1) can be installed in the kit for applications that require additional general-purpose network I/O that a controller can use. The drive and I/O devices are handled as one node on the network, saving network node count and increasing network throughput.

Versatile Power Connections – Connect either a 24 VDC power source to the kit's convenient removable terminal block, or use the Allen-Bradley AC power adapter (20-XCOMM-AC-PS1, purchased separately) that comes with interchangeable region plugs (US, UK, Europe, and Australia). The kit can also be daisy-chained to provide power for additional kits.

EXAMPLE SYSTEM OVERVIEW

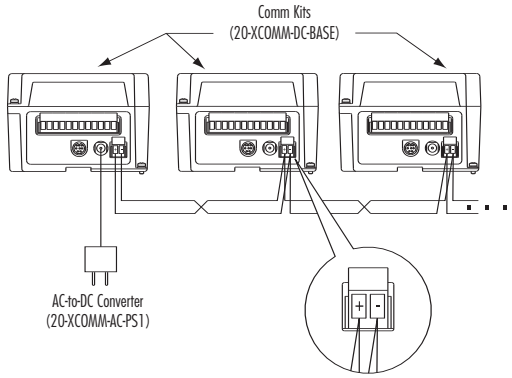




Item	Connector	Description
❶	Network	Network connection for communication adapter
❷	Optional I/O	I/O connection for 20-XCOMM-IO-OPT1 board
❸	24 VDC	Connection for 24 VDC power source
❹	AC-to-DC	Connection for 20-XCOMM-AC-PS1 power adapter
❺	DPI	DPI Connection for 1202-C** communication cable

DAISY-CHAINING KITS

You can power additional external communication kits by daisy-chaining them together.



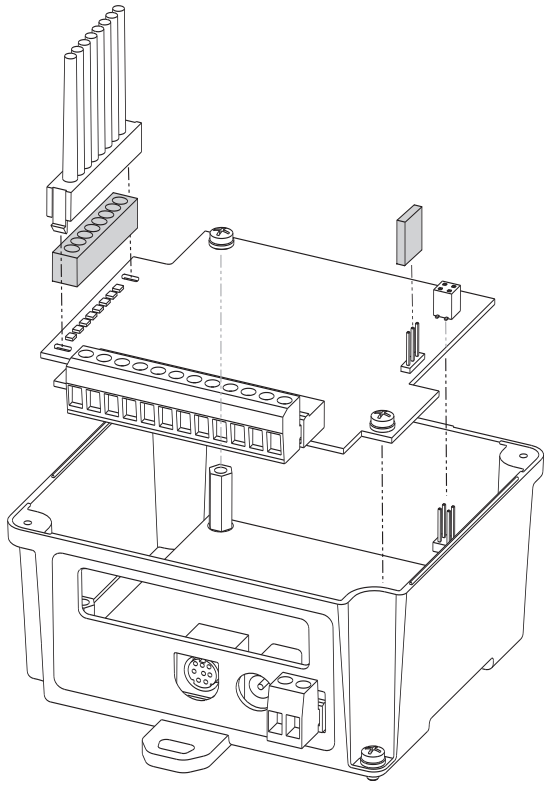
SPECIFICATIONS

Communications	Network	Protocol	Dependent on installed adapter
		Data Rates	Dependent on installed adapter
	Drive	Protocol	DPI
		Data Rates	125 kbps or 500 kbps
Electrical	Consumption	Drive	60 mA at 12 VDC supplied from drive via DPI cable
		Network	Ethernet None ControlNet None DeviceNet 60 mA at 24 VDC
		DC Power Supply Requirement	20-COMM-E 140 mA at 24 VDC 20-COMM-C 104 mA at 24 VDC 20-COMM-Q 135 mA at 24 VDC 20-COMM-D 60 mA at 24 VDC
Compliance		UL	UL508C
		cUL	CAN / CSA C22.2 No. 14-M91
		CE	EN50178 and EN61800-3
		CTick	EN61800-3

I/O BOARD OPTION

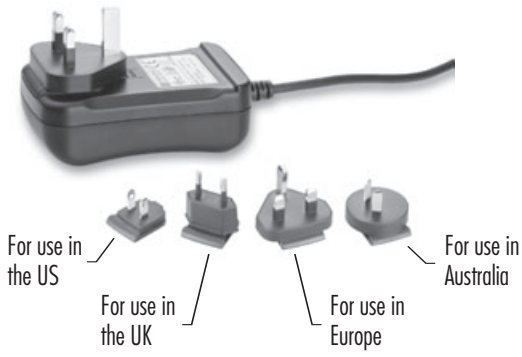
The I/O board (20-XCOMM-IO-OPT1, sold separately) features:

- 6 non-isolated 24 VDC digital inputs
- 2 isolated contact relay outputs
- 8 I/O LED status indicators



AC POWER ADAPTER OPTION

The AC power adapter (20-XCOMM-AC-PS1) is an accessory AC-to-DC converter for use with the external communications kit. The converter, which comes with interchangeable plugs, is shown below. The converter connects to any available 100-240 VAC receptacle. Use the appropriate plug for your region:



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7-CLASS CONNECTIVITY

Communication Adapter / Module	Protocol/Platform	PowerFlex 7-Class						
		70		700		700H	700S	7000
		Std.	EC	Std	VC			
1203-SSS	DF1 (RS232)	Y	Y	Y	Y	Y	Y	Y
20-COMM-C	ControlNet (coax)	Y	Y	Y	Y	Y	Y	Y
20-COMM-D	DeviceNet	Y	Y	Y	Y	Y	Y	Y
20-COMM-E	EtherNet/IP	Y	Y	Y	Y	Y	Y	Y
20-COMM-H	Modbus RTU	Y	Y	Y	Y	Y	Y	Y
	Metasys N2	Y	Y	Y	N	Y	N	Y
	Siemens P1 FLN	Y	Y	Y	N	Y	N	N
20-COMM-I	Interbus	Y	Y	Y	Y	Y	Y	Y
20-COMM-L	LonWorks	Y	Y	Y	N	Y	N	N
20-COMM-P	PROFIBUS DP	Y	Y	≥v1.002	Y	Y	≥v1.002	Y
20-COMM-Q	ControlNet (fiber)	Y	Y	Y	Y	Y	Y	Y
20-COMM-R	Remote I/O	Y	Y	Y	Y	Y	Y	Y
20-COMM-S	DF1 (RS485)	Y	Y	Y	Y	Y	Y	Y
1769-SM1	Compact I/O	Y	Y	Y	Y	Y	Y	Y
20-WIM-NX	Bluetooth	Y	Y	Y	Y	Y	Y	Y

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